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UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN JOSE DIVISION

ZACHARY DEAN AND CHRISTOPHER VOGT, on behalf of themselves and all others similarly situated; Plaintiffs, v. INTEL CORPORATION, a Delaware corporation; Defendant.	Case No. **CLASS ACTION COMPLAINT FOR DAMAGES AND EQUITABLE RELIEF** DEMAND FOR JURY TRIAL CLASS ACTION

Plaintiffs Zachary Dean and Christopher Vogt, individually and on behalf of all others similarly situated, by their undersigned counsel, allege the following upon personal knowledge as to their own acts and upon information and belief as to all other matters.

NATURE OF THE ACTION

1. Plaintiffs bring this action against defendant Intel Corporation ("Intel" or "Defendant").

2. Intel manufactures the central processing units ("CPUs") that power most servers, laptops, desktop computers, tablets, smartphones, and other computing devices. Those CPUs suffer from several defects that allow hackers to access to what was supposed to be secure data, colloquially known as Meltdown and Spectre (the "Defects").

3. These Defects cannot be "patched" (*i.e.*, fixed remotely via a software update). And any mitigation efforts would seriously affect CPU performance. Current proposals to mitigate (but not totally fix) the Defects require changes to the very root level of a computer's operating system that would degrade CPU performance by as much as 30-50%. So, the Defects render virtually every Intel chip manufactured since 1995 to the present unfit for their intended purpose. Users of the chips are left to choose: either fix the vulnerability and live with reduced CPU performance, or leave the chip vulnerable to infiltration.

4. Intel knew its CPUs suffered from the Defects, at the latest, in June 2017. Intel nevertheless kept this knowledge secret via an "information embargo," which was not lifted until January 3, 2018.[1] On January 3, the news was made public and confirmed. Two academic papers, together with blog posts and online news sources uncovered that Intel processors suffered from several types of design flaws and security vulnerabilities.[2]

[1] Some details of the Defects leaked in the days before the information was officially made public. For example, *The Register* reported on January 2, 2018 that "[a] fundamental design flaw in Intel's processor chips has forced a significant redesign of the Linux and Windows kernels to defang the chip-level security bug," though the specifics of the Defects were not publicly known until the next day. *See* https://www.theregister.co.uk/2018/01/02/intel_cpu_design_flaw/ (last visited January 5, 2018).

[2] *See* https://meltdownattack.com/meltdown.pdf and https://spectreattack.com/spectre.pdf.

5. Plaintiffs and class members suffered injury in fact, a loss of money/degradation in value, and damage to their property because of Intel's defective design, manufacture, distribution, and sale of compromised CPUs.

THE PARTIES

6. Plaintiff Zachary Dean is an individual and a citizen residing in the State of Connecticut. In 2013, Dean purchased from Apple a Macbook Pro laptop computer containing an Intel Core i7 processor. At the time of his purchase, Dean was not aware of the Defects. Had he known, Dean would not have purchased a computer with this CPU or paid the price he did.

7. Plaintiff Christopher Vogt is an individual and a citizen residing in the State of New York. On or about August 2017, Vogt purchased a Microsoft Surface 3 tablet computer containing an Intel Atom x7-Z8700 CPU. This purchase occurred after the date that Intel learned of the Defect but prior to Intel's disclosure of the Defect on January 3, 2018 pursuant to its self-imposed "information embargo." At the time of his purchase, Vogt was not aware of the Defects. Had he known, Vogt would not have purchased a device with this CPU or paid the price he did.

8. Intel is a business incorporated under the laws of the State of Delaware with its principal place of business at 2200 Mission College Blvd., Santa Clara, California. Intel is engaged in the business of designing, manufacturing, distributing, and selling CPUs.

9. References to Intel shall mean (a) Intel's directors, officers, employees, affiliates, or agents, or anyone authorized to manage, direct, or control Intel; or (b) any persons who are the parents or alter egos of Defendant, while acting within the scope of their agency, affiliation, or employment.

JURISDICTION AND VENUE

10. The Court has general personal jurisdiction over Intel because it resides in this District.

11. The Court has jurisdiction under 28 U.S.C. § 1331 because at least one of Plaintiffs' claims arises under the laws of the United States (*see* Count II, below).

12. The Court has jurisdiction under 28 U.S.C. § 1332(d), the Class Action Fairness Act, because the class contains members, including Plaintiffs, that are citizens of a state different

from the Defendant, there are more than 100 putative class members, and the amount in controversy exceeds $5 million exclusive of interest and costs.

13. Venue is proper in this District under 28 U.S.C. §1391(b)(2) because a substantial part of the events or omissions giving rise to these claims occurred in this District and Intel resides in this District.

INTRADISTRICT ASSIGNMENT

14. Assignment to the San Jose Division of this District is proper under Northern District of California Civil Local Rule 3-2(c) because a substantial part of the events or omissions which give rise to the claims asserted herein occurred, and Defendant's principal place of business is located, in Santa Clara County, California. Under Civil Local Rule 3-2(e), all civil actions which arise in the county of Santa Clara shall be assigned to the San Jose Division.

FACTUAL ALLEGATIONS

15. If a computer were a human body, the CPU would be its brain. It controls everything and the various processes running within it. The nucleus of a CPU is the "kernel," where sensitive memory is stored (supposedly) securely. The kernel manages all processes in a computer. When a user runs a program on a computer, the CPU dictates what processes the computer must complete. The CPU sets instructions based on the user inputs or what the computer needs, and the CPU looks to the kernel to attain the necessary data to execute processes.

16. To execute these operations faster, a CPU predicts what it will have to do next and queues up instructions in advance. This process, called "speculative execution," allows the CPU to use what it knows about how it has operated in the past to issue a set of instructions in advance and complete them in succession. This saves times when compared to issuing instructions one at a time and executing operations in order. The CPU can even set up several conditional sets of instructions, so that one set of instructions is ready to go if it gets one input, and a different set of instructions is ready to go if it gets a different input.

17. Often, these lists of instructions will require data to execute. Sensitive data must be pulled from the CPU's kernel, a process called a "memory fetch." Ordinarily, for a program to

access this sensitive data, it must satisfy certain security checks—the CPU makes sure that the program is legitimate and is supposed to be allowed to access the sensitive data. But this does not happen during speculative execution. So, when a CPU queues up instructions in advance, it conducts memory fetches to have the necessary data at the ready (stored in a "cache") for when the instructions are going to be executed. This is the failing at the heart of the Defects.

18. In reporting on this scourge of Defects in Intel's chips, the New York Times analogized speculative execution to a butler bringing glasses of wine to a user:

> In a way, modern microprocessors act like attentive butlers, pouring that second glass of wine before you knew you were going to ask for it.
>
> But what if you weren't going to ask for that wine? What if you were going to switch to port? No problem: The butler just dumps the mistaken glass and gets the port. Yes, some time has been wasted. But in the long run, as long as the overall amount of time gained by anticipating your needs exceeds the time lost, all is well.
>
> Except all is not well. Imagine that you don't want others to know about the details of the wine cellar. It turns out that by watching your butler's movements, other people can infer a lot about the cellar. Information is revealed that would not have been had the butler patiently waited for each of your commands, rather than anticipating them. Almost all modern microprocessors make these butler movements, with their revealing traces, and hackers can take advantage.[3]

A. Background

19. A CPU is supposed to keep each program on a computer—and the data programs store—isolated from one another. This principle, called "memory isolation," is an important concept in systems design. Without memory isolation, a malicious program could capture data stored by another program, or stored in a computer's memory. For instance, a user's credit card information, bank information, passwords, e-mails, etc., which might be stored in a browser or an e-mail application, must be kept within the access of that program only.

20. The Defects, known as Meltdown and Spectre, are vulnerabilities in Intel CPUs caused by how Intel designed those CPUs to access memory.

[3] *The Looming Digital Meltdown*, The New York Times, *available at* https://www.nytimes.com/2018/01/06/opinion/looming-digital-meltdown.html?action=click&module=Well&pgtype=Homepage (Last accessed Jan. 8, 2018).

21. Typically, a CPU will isolate the memory pages (where data are stored) of the kernel from everything else. Access is controlled by a "supervisor bit," which, like an air traffic controller, signals whether a given program is allowed to access a particular memory page in the kernel. This "supervisor bit" can only be set when entering kernel code, and it gets cleared when switching to another user process. So, where one program might get authorization to execute a memory fetch and attain data from the kernel, another program running at the same time might be blocked. Executing a memory fetch, however, takes time because it requires the CPU to stop executing regular instructions and switch from "user mode" into a special "kernel mode," before entering the kernel to access memory. The CPU must then switch back to user mode after it leaves the kernel to resume executing regular instructions.

22. To save time, an Intel CPU only checks whether a program is allowed to access data from a memory fetch *after* speculative execution—or another, similar process, "out-of-order execution"[4]—occurs. Speculative execution sets up branches of possible future processes and increases performance by guessing these likely future processes in each branch. And true to its name, speculative execution even prematurely executes these possible future instructions. Thus, Intel CPUs can freely access kernel memory when performing speculative or out-of-order execution.

23. When a process in a speculative execution branch depends on certain uncached data located in memory, as discussed above, it takes time to fetch. Rather than wasting time idling and waiting for the fetch to complete, the processor speculatively sets up the program on various guessed paths. When the data eventually arrives from memory, the processor checks if its guess was correct. If wrong, the processor discards the (incorrect) speculative executions and reverts, resulting in performance comparable to if the CPU had simply waited for the fetch. To

[4] Out-of-order execution is where CPUs queue up instructions for the running of a program in a "reorder buffer," and then "retire" them in the correct execution order. This is done to save time: it allows a program's instructions to be executed in parallel with, and sometimes before, instructions that would normally precede—as opposed to executing processes one after the other. At times, this path of the execution of instructions branches off. In other words, one set of instructions is contingent upon a preceding instruction going a certain way.

use the New York Times' analogy, above: this is the butler discarding the incorrect glass of wine he preemptively poured and instead going to fetch the correct glass of port.

24. But if the guess was correct, the CPU commits to the correctly-guessed process and yields a time-saving performance gain because work was done during what would normally be idle time.

25. To improve speculative execution, CPUs map recently executed branch instructions to help guess future ones. So, to increase the accuracy of these speculative guesses, processors use a Branch Target Buffer ("BTB") to predict future code addresses based on past executions.

26. These queued up conditional branches of fetched memory should be blocked. But we now know it is possible for attackers to read the data by exploiting the Defects.

B. Meltdown

27. Meltdown allows an attacker to run code to access a dump of an entire kernel address space, including its memory.

28. Meltdown can do this because speculative execution memory fetches are stored in the cache. Many of these speculative memory fetches do not get used. Ordinarily, these cache-stored memory fetches are discarded if they do not ultimately get authorized and utilized by a process. The CPU cache is not supposed to be readable if the memory is correctly isolated. But by using a cache "timing attack," a rogue process can determine whether data are held in the cache, even if it does not have authority to read those data.

29. A timing attack is a type of "side-channel" attack, which means it is based on side-effects of normal computer operations that inadvertently leak information. Common examples of side-channel attacks are hackers analyzing sound leaks, electromagnetic leaks, or amounts of power consumed by a computer. This allows a hacker to glean what the computer was doing, based on what would have made that precise sound, leaked precisely that amount of electromagnetism, or consumed precisely that much power. A "timing attack" does this based on analyzing the passage of time. An attacker monitors how much time certain functions took to execute and then reverse engineers *what the computer did* based on *how long it took to do it*.

30. Here, an attacker can use timing to discern whether secret data have been cached. For example, if an instruction to read the data uses the cache to do so, it happens fast. If the data are not cached, the CPU would have to request that the data be read from memory (which is slower). The attacker can use this difference in timing to detect which of these took place, and whether the data was already in the cache or not.

31. From that, the attacker can discern the location of the data on the memory and read every memory address by repeating these steps for any and all memory locations, effectively resulting in a dump of the entire kernel memory.

C. Spectre

32. Spectre allows malicious software to run code that will induce a system to perform operations that would not normally occur, but which leak data. And unlike Meltdown, Spectre is not a single type of vulnerability, but rather a class of multiple potential vulnerabilities.

33. Because BTB can touch private data even before a process is deemed to have authority to access the data, the attacker can use speculative execution to reach otherwise secret memory. The attacker searches for places where speculation touches upon otherwise inaccessible data. The attacker exploits the processor's BTB activity by manipulating how it guesses future executions of a conditional branch.

34. Spectre does this by performing operations designed to incorrectly train a processor to later make an exploitable speculative prediction, turning the CPU's own processes of speculative execution against it. Then, the processor speculatively executes these mis-instructions. Thus, the attacker tricks the processor to use speculative execution to access secret data and store it in the cache, resulting in a transfer of data from the memory to the cache.

35. Then, the attacker times the side effect of the processor being faster (as a result of the fact that its mistrained machinery is bound to load a cache line). In this way, an attacker can force speculative execution to read any data from the memory at any address and store the memory in the cache. Then, knowing the data is in the cache, the attacker modifies the cache state to expose the data and recovers it.

D. Mitigation Is Impracticable or Impossible

36. The Defects are material because neither Plaintiffs, Class members, nor any reasonable consumer would have purchased Intel CPUs, or paid the prices they did, had they known data stored on their systems would be compromised.

37. The Defect is unprecedented in scope in that it exposes millions of Intel-based computers to critical security vulnerabilities and hacking. To date, any proposed patches to cure these security vulnerabilities will result in substantial performance degradation. And to date, there is no viable replacement available such that a consumer can go out and swap the affected machine with another. All the chips and computers using those chips (which is the vast majority) currently available to purchase continue to contain defective chips.

38. Any steps to mitigate the Defects would require extensive changes at the root levels of the operating system software, which would impact the performance of Intel processor-based machines. For example, experts have proposed moving the kernel to a separate address space, but switching between two address spaces for every memory fetch takes time, resulting in a computer running slower. In another example, experts have proposed adding speculative execution blocking instructions. In other words, a conditional branch speculative execution can be halted if a path is particularly sensitive. Again, the problem is that doing so would severely degrade performance.

39. And this highlights the difference between Spectre and Meltdown. Meltdown exploits scenarios where CPUs allow out-of-order execution of *user* instructions to read kernel memory. Thus, the above mitigation proposals (which would result in degraded performance, anyway) that prevent speculative execution of instructions in certain user processes from accessing kernel memory, would not do anything to mitigate Spectre. Spectre exploits scenarios where CPUs speculatively execute instructions that can be read from memory that a process could access on its own. Simply put: Spectre can manipulate a CPU into revealing its own data. On the other hand, Meltdown can be used to read privileged memory in a process's address space, which even the process itself would normally be unable to access (on some unprotected operating systems, this includes data belonging to the kernel or other processes).

40. Intel is aware that its CPUs suffer from the Defects and admits that they expose the CPUs to critical security vulnerabilities. Intel also admits that any of the currently proposed operating system-level software patches will slow the performance.[5]

41. To date, Intel has not cured the Defects. Indeed, the Defects may never be curable. Nor has Intel replaced Plaintiffs' Intel CPUs with non-defective CPUs. Nor have they offered any compensation.

CLASS ACTION ALLEGATIONS

42. Plaintiffs bring this action pursuant to Rule 23 of the Federal Rules of Civil Procedure on behalf of themselves and as representatives of the following Class:[6]

> All persons who purchased or leased one or more Intel CPUs from Intel and/or its authorized retailer sellers or products containing Intel CPUs at any time since 1995.

43. Excluded from the Class are Defendant, its officers and directors, management, employees, subsidiaries, or affiliates. Also excluded from the Class is the Judge presiding over this action, his or her law clerks, spouse, any other person within the third degree of relationship living in the Judge's household, the spouse of such person, and the United States Government.

44. The Class is so numerous that joinder of the individual members of the proposed Class is impracticable. The Class includes thousands of persons geographically dispersed throughout the United States. The precise number and identities of Class members are unknown to Plaintiffs, but are known to Defendant or can be ascertained through discovery, using records of sales, warranty records, and other information kept by Defendant or its agents.

45. Plaintiffs do not anticipate any difficulties in the management of this action as a class action. The Class is ascertainable, and there is a well-defined community of interest in the questions of law and/or fact alleged herein since the rights of each Class member were

[5] *See* https://newsroom.intel.com/news/intel-responds-to-security-research-findings/.

[6] Plaintiffs have defined the Class based on currently available information and hereby reserve the right to amend the definition of the Class, including, without limitation, membership criteria and the Class Period.

infringed or violated in similar fashion based upon Defendant's uniform misconduct. Notice can be provided through sales and warranty records and publication.

46. Plaintiffs' claims are typical of the claims of the other members of the Class. Plaintiffs and the members of the Class sustained damages arising out of Defendant's common course of conduct in violation of law as complained of herein. The injuries and damages of each member of the Class were directly caused by Defendant's wrongful conduct in violation of the laws as alleged herein.

47. Plaintiffs will fairly and adequately protect the interests of the members of the Class. Plaintiffs are adequate representatives of the Class and have no interest that is adverse to the interests of absent Class members. Plaintiffs have retained counsel competent and experienced in class action litigation.

48. Questions of law or fact common to the Class exist as to Plaintiffs and all Class members, and these common questions predominate over any questions affecting only individual members of the Class. Among these predominant common questions of law and/or fact are the following:

a) Whether Defendant's CPUs possess Defects and the nature of the Defects;

b) Whether Defendant made any implied warranties in connection with the sale of the defective CPUs;

c) Whether Defendant breached any implied warranties relating to its sale of defective CPUs by failing to resolve the Defects in the manner required by law;

d) Whether Defendant was unjustly enriched by selling defective Intel CPUs;

e) Whether Defendant violated applicable consumer protection laws by selling CPUs with the Defects or by failing to disclose the Defects, and failing to provide the relief required by law; and

f) The appropriate nature and measure of Class-wide relief.

49. Defendant engaged in a common course of conduct giving rise to the legal rights sought to be enforced by Plaintiffs and the Class. Individual questions, if any, pale by comparison to the numerous common questions that predominate.

50. A class action is superior to other available methods for the fair and efficient group-wide adjudication of this controversy, and individual joinder of all Class members is

impracticable, if not impossible because a large number of Class members are located throughout the United States. Moreover, the cost to the court system of such individualized litigation would be substantial. Individualized litigation would likewise present the potential for inconsistent or contradictory judgments and would result in significant delay and expense to all parties and multiple courts hearing virtually identical lawsuits. By contrast, the conduct of this action as a class action presents fewer management difficulties, conserves the resources of the parties and the courts, protects the rights of each Class member, and maximizes recovery to them.

51. Defendant has acted on grounds generally applicable to the entire Class, thereby making final injunctive relief or corresponding declaratory relief appropriate with respect to the Class as a whole.

COUNT I
Breach of Implied Warranty

52. Plaintiffs hereby incorporate all the above allegations by reference as if fully set forth herein. Plaintiffs assert this count individually and on behalf of the proposed Class.

53. Defendant and its authorized agents and resellers sold Intel CPUs to Plaintiffs and Class members in the regular course of business.

54. Defendant impliedly warranted to members of the general public, including Plaintiffs and Class members, that these CPUs were of merchantable quality (*i.e.*, a product of a high enough quality to make it fit for sale, usable for the purpose it is made, of average worth in the marketplace, or not broken, unworkable, damaged, contaminated, or flawed), was of the same quality as those generally acceptable in the trade or that would pass without objection in the trade, were free from material defects, and were reasonably fit for the ordinary purposes for which they were intended or used. In addition, Defendant either was or should have been aware of the particular purposes for which such CPUs are used, and that Plaintiffs and the Class members were relying on the skill and judgment of Defendant to furnish suitable goods for such purpose.

55. Pursuant to agreements between Defendant and its authorized agents and re-sellers, the stores Plaintiffs and Class members purchased their defective Intel CPUs from are authorized retailers and authorized CPU service facilities. Plaintiffs and Class members are third-party beneficiaries of, and substantially benefited from, such contracts.

56. Defendant breached its implied warranties by selling Plaintiffs and Class members defective Intel CPUs. The Defect renders the Intel CPUs unmerchantable and unfit for their ordinary or particular use or purpose. Defendant has refused to recall, repair, or replace, free of charge, all Intel CPUs or any of their defective component parts or refund the prices paid for such CPUs.

57. The Defect in the Intel CPUs existed when the CPUs left Defendant's and their authorized agents' and retail sellers' possession and thus is inherent in such CPUs.

58. As a direct and proximate result of Defendant's breach of its implied warranties, Plaintiffs and Class members have suffered damages and continue to suffer damages, including economic damages at the point of sale in terms of the difference between the value of the CPUs as warranted and the value of the CPUs as delivered. Additionally, Plaintiffs and Class members either have or will incur economic, incidental, and consequential damages in the cost of repair or replacement and costs of complying with continued contractual obligations as well as the cost of buying an additional CPU they would not have purchased had the CPUs in question not contained the non-repairable Defect.

59. Plaintiffs and Class members are entitled to legal and equitable relief against Defendant, including damages, specific performance, rescission, attorneys' fees, costs of suit, and other relief as appropriate.

COUNT II
The Magnuson-Moss Warranty Act, 15 U.S.C. § 2302, et seq.

60. Plaintiffs incorporate all of the above allegations by reference as if fully set forth herein.

61. Plaintiffs assert this claim individually and on behalf of all Class members.

62. Plaintiffs satisfy the Magnuson-Moss Warranty Act ("MMWA") jurisdictional requirement because they allege diversity jurisdiction under the Class Action Fairness Act, 28 U.S.C. § 1332(d)(2).

63. Plaintiffs and Class members are "consumers" within the meaning of the MMWA, 15 U.S.C. § 2301(4)-(5).

64. Intel is a "supplier" and "warrantor" within the meaning of 15 U.S.C. §§ 2301(4)-(5).

65. Intel CPUs are "consumer products" within the meaning of 15 U.S.C. § 2301(1).

66. The MMWA provides a cause of action for any consumer who is damaged by the failure of a warrantor to comply with a written or implied warranty. 15 U.S.C. § 2310(d)(1).

67. Defendant impliedly warranted to members of the public, including Plaintiffs and Class members, that these CPUs were merchantable and fit for the ordinary and particular purposes for which the CPUs are required and used.

68. Defendant has breached its implied warranties because the Intel CPUs sold to Plaintiffs and Class members were not merchantable and were not fit for the ordinary and particular purposes for which such goods are used in that the CPUs suffer from a critical security defect, requiring an OS-level software patch that will degrade the performance of the CPU.

69. Pursuant to agreements between Defendant and its authorized agents and re-sellers, the stores Plaintiffs and Class members purchased their defective Intel CPUs from are authorized retailers and authorized CPU service facilities. Plaintiffs and Class members are third-party beneficiaries of, and substantially benefited from, such contracts.

70. As a direct and proximate result of Defendant's breach of their implied warranties, Plaintiffs and the Class Members sustained damages and other losses in an amount to be determined at trial. Intel's conduct damaged Plaintiffs and the Class, who are entitled to recover damages, specific performance, diminution in value, costs, attorneys' fees, rescission, and/or other relief as may be appropriate.

COUNT III
Violations of New York General Business Law § 349

71. Plaintiffs re-allege and incorporate the preceding allegations of this Complaint as though stated herein.

72. Plaintiff Vogt and the other members of the Class have been injured and suffered damages by violations of section 349(a) of New York General Business Law (the "GBL"), which states that deceptive acts or practices in the conduct of any business, trade, or commerce or in the furnishing of any service in the State of New York are unlawful.

73. Defendant engaged in acts and practices in the State of New York that were deceptive or misleading in a material way, and that injured Plaintiff Vogt and other members of the Class.

74. Specifically, Defendant engaged in deceptive acts or practices by selling CPUs knowing or being aware the CPUs contained a critical security defect. Defendant also engaged in unfair business acts or practices by making warranties, which it refuses to honor. As a direct and proximate result of these violations, Plaintiffs and the Class suffered actual damages as discussed herein.

75. Plaintiffs and Class members used Defendant's products and had business dealings with Defendant either directly or indirectly as described above. The acts and practices of Defendant have caused Plaintiffs and Class members to lose money and property by being overcharged for and paying for the defective CPUs at issue, or being required to purchased an additional non-defective CPU. Plaintiff Vogt and member of the Class have been damaged by Defendant's violations of Section 349 of the GBL, for which they seek recovery of the actual damages they suffered because of Defendant's willful and wrongful violations of section 349, in an amount to be determined at trial.

COUNT IV
Violations of New York General Business Law § 350

76. Plaintiffs re-allege and incorporate the preceding allegations of this Complaint with the same force and effect as if fully restated herein.

77. New York GBL § 350 prohibits false advertising in the conduct of any business, trade, or commerce.

78. New York GBL § 350 defines false advertising as "advertising, including labeling, of a commodity . . . if such advertising is misleading in a material respect."

79. Defendant's advertisements were false and misleading in a material way due to false labeling, statements, and omissions regarding the performance and security of its products.

COUNT V
Violation of Connecticut's Unfair Trade Practices Act ("CUTPA"), Conn. Gen. Stat. Ann. § 42-110a *et seq.*

80. Plaintiffs re-allege and incorporate the preceding allegations of this Complaint with the same force and effect as if fully restated herein.

81. Plaintiff Dean's and the other members of the Class's injuries arise from Defendant's deceptive business practices as a seller of CPUs.

82. Pursuant to CUTPA, Conn. Gen. Stat. Ann. § 42-110a:

> "Trade" and "commerce" mean "the advertising, offering for sale, sale or distribution of any services and any property, tangible or intangible, real, personal or mixed, and any other article, commodity, or thing of value wherever situate, and includes any trade or commerce directly or indirectly affecting the people of this Commonwealth.

83. Defendant's sale of CPUs qualifies as "trade" and "commerce" as defined by CUTPA, Conn. Gen. Stat. Ann. § 42-110a.

84. Pursuant to CUTPA, Conn. Gen. Stat. Ann. § 42-110b:

> a. "No person shall engage in unfair methods of competition and unfair or deceptive acts or practices in the conduct of any trade or commerce."
>
> b. "It is the intent of the legislature that in construing subsection (a) of this section, the commissioner and the courts of this state shall be guided by interpretations given by the Federal Trade Commission and the federal courts to Section 5(a)(1) of the Federal Trade Commission Act (15 USC 45(a)(1)), as from time to time amended."
>
> c. "The commissioner may, in accordance with chapter 54, establish by regulation acts, practices or methods which shall be deemed to be unfair or deceptive in violation of subsection (a) of this section…"
>
> d. "It is the intention of the legislature that this chapter be remedial and be so construed."

85. Plaintiff is authorized to bring a private action under CUTPA, Conn. Gen. Stat. Ann. § 42-110g:

> a. "Any person who suffers any ascertainable loss of money or property, real or personal, as a result of the use or employment of a method, act or practice prohibited by section 42-110b, may bring an action in the judicial district in which the plaintiff or defendant resides or has his principal place of business or is doing business, to recover actual damages. Proof of public interest or public injury shall not be required in any action brought under this section. The court may, in its discretion, award punitive damages and may provide such equitable relief as it deems necessary or proper."
>
> b. "Persons entitled to bring an action under subsection (a) of this section may, pursuant to rules established by the judges of the Superior Court, bring a class action on behalf of themselves and other persons similarly situated who are residents of this state or injured in this state to recover damages."
> …
>
> c. "In any action brought by a person under this section, the court may award, to the plaintiff, in addition to the relief provided in this section, costs and reasonable attorneys' fees based on the work reasonably performed by an attorney and not on the amount of recovery. In a class action in which there is no monetary recovery, but other relief is granted on behalf of a class, the court may award, to the plaintiff, in addition to other relief provided in this section, costs and reasonable attorneys' fees. In any action brought under this section, the court may, in its discretion, order, in addition to damages or in lieu of damages, injunctive or other equitable relief."

86. Defendant's unfair or deceptive practices include, but are not limited to, the following:

a. breaching implied warranties;

b. representing that goods or services have characteristics, uses, benefits, or qualities that they do not have; and

c. representing that goods or services are of a particular standard, quality, or grade, or that goods are of a particular style or model, if they are of another.

87. Specifically, Defendant engaged in "unfair" business acts and practices by selling CPUs knowing or being aware the CPUs contained a critical security defect. Defendant also engaged in unfair business acts or practices by making warranties, which it refuses to honor. As a direct and proximate result of these violations, Plaintiffs and the Class suffered actual damages as discussed herein.

88. Plaintiffs and Class members used Defendant's products and had business dealings with Defendant either directly or indirectly as described above. The acts and practices of Defendant have caused Plaintiffs and Class members to lose money and property by being overcharged for and paying for the defective CPUs at issue, or being required to purchase an additional non-defective CPU. Such loss was the result of the above acts of unfair competition and Defendant's misconduct as set forth above. Plaintiffs are therefore entitled to seek recovery of such amounts. Such injury occurred at the time such monies were paid. Plaintiffs and the Class have thus suffered injury in fact and lost money or property as a result of such acts and practices as set forth above.

COUNT VI
Unjust Enrichment

89. Plaintiffs incorporate all of the above allegations by reference as if fully set forth herein. Plaintiffs assert this claim individually and on behalf of all Class members.

90. This cause of action is alleged as an alternative to the warranty claims as permitted under Rule 8(d)(2) of the Federal Rules of Civil Procedure.

91. As Plaintiffs and the Class show just grounds for recovering money paid for benefits Defendant received from them, either directly or indirectly, and they have a right to restitution through an action derived from the common-law writ of assumpsit by implying a contract at law based on principles of restitution and unjust enrichment, or though quasi-contract.

92. Defendant, having received such benefits, is required to make restitution. The circumstances here are such that, as between the two, it is unjust for Defendant to retain such benefit based on the conduct described above. Such money or property belongs in good conscience to the Plaintiffs and Class members and can be traced to funds or property in Defendant's possession. Plaintiffs and Class members have unjustly enriched Defendant through payments and the resulting profits enjoyed by Defendant as a direct result of such payments. Plaintiffs' detriment and Defendant's enrichment were related to and flowed from the conduct challenged in this Complaint.

93. By virtue of the purchase and sale of the CPUs in question, Defendant alternatively entered into a series of implied-at-law or quasi-contracts that resulted in money being had and received by Defendant, either directly or indirectly, at the expense of Plaintiffs and Class members under agreements in assumpsit. Plaintiffs and other Class members conferred a benefit upon Defendant by purchasing one of the defective CPUs. Defendant had knowledge of the general receipt of such benefits, which Defendant received, accepted and retained. Defendant owes Plaintiffs and Class members these sums that can be obtained either directly from Class members, Defendant or its authorized retailers.

94. Under principles of restitution, an entity that has been unjustly enriched at the expense of another by the retention of benefit wrongfully obtained is required to make restitution to the other. In addition, under common law principles recognized in claims of common counts, assumpsit, unjust enrichment, restitution, and quasi-contract, under the circumstances alleged herein it would be inequitable for Defendant to retain such benefits without paying restitution or restitutionary damages. Such principles require Defendant to return such benefits when the retention of such benefits would unjustly enrich Defendant. They should not be permitted to retain the benefits conferred by Plaintiffs and Class members via payments for the defective CPUs. Other remedies and claims may not permit them to obtain such relief, leaving them without an adequate remedy at law.

95. Plaintiffs and Class members seek appropriate monetary relief for such claims. Based on the facts and circumstances alleged above, in order to prevent unjust enrichment and to prevent Defendant from taking advantage of its own wrongdoing, Plaintiffs and the Class are further entitled to the establishment of a constructive trust, in a sum certain, of all monies charged and collected or retained by Defendant from which Plaintiffs and Class members may seek restitution.

COUNT VII
Strict Liability

96. Plaintiffs incorporate all of the above allegations by reference as if fully set forth herein. Plaintiffs assert this claim individually and on behalf of all Class members.

97. Plaintiffs and the Class were harmed by CPUs Defendant manufactured, which were contained in, but also separate and apart from, the computers they purchased.

98. Defendant's CPUs contained a manufacturing defect, or were defectively designed for the reasons set forth above.

99. Plaintiffs and Class members have been harmed, as they now own a computer with a CPU that due to such manufacturing or design defect is subject to invasion of a supposedly core protected part of the CPU and decreased performance, in an amount according to proof at trial.

COUNT VIII
Negligence

100. Plaintiffs incorporate all of the above allegations by reference as if fully set forth herein. Plaintiffs assert this claim individually and on behalf of all Class members.

101. Defendant was negligent in the manufacture and design of the CPUs containing the Defects, which CPUs were contained in, but also separate and apart from, the computers Plaintiffs and Class members purchased.

102. Defendant's negligence was a substantial factor and reasonably foreseeable in causing harm to Plaintiffs and Class members.

103. Plaintiffs and Class members have been harmed, as they now own a computer with a CPU that due to such manufacturing or design defect is subject to invasion of a supposedly core protected part of the CPU and decreased performance, in an amount according to proof at trial.

PRAYER FOR RELIEF

Plaintiff demands relief as follows:

A. That the Court certify this lawsuit as a class action under Rules 23(a), (b)(2), and (b)(3) of the Federal Rules of Civil Procedure, that Plaintiffs be designated as class representatives, and that Plaintiffs' counsel be appointed as counsel for the Class;

B. That Defendant be permanently enjoined and restrained from continuing and maintaining the violation alleged in the Complaint;

C. Awarding Plaintiffs and Class members all proper measures of monetary relief and damages, plus interest to which they are entitled;

D. Awarding equitable, injunctive, and declaratory relief as the Court may deem just and proper, including restitution and restitutionary disgorgement;

E. That the Court award Plaintiffs and the Class their costs of suit, including reasonable attorneys' fees and expenses, as provided by law; and

F. That the Court direct such further relief as it may deem just and proper.

DEMAND FOR JURY TRIAL

Pursuant to Rule 38(b) of the Federal Rules of Civil Procedure, Plaintiffs demand a jury trial as to all issues triable by a jury.

DATED: January 9, 2018

BERMAN TABACCO

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